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10/524,752	07/07/2005	Georg Werner Reppel	47192/312177	6817

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EXAMINER

SHEEHAN, JOHN P

ART UNIT	PAPER NUMBER
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1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/524,752	Applicant(s) REPEL, GEORG WERNER	
	Examiner John P. Sheehan	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 3, 2009 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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I. Amended claim 13 now recites that the powder is homogenized.

According to The ASM Materials Engineering Dictionary, in metallurgy to homogenize means;

A heat treating practice whereby a metal object
Is held at high temperature to eliminate or
decrease chemical segregation by diffusion

As presently drafted claim 13 encompasses such a heat treatment, however there is not support in the application as filed for such a heat treatment. For example, original claim 13, as filed, recited homogenizing the alloy powder by blending the magnetic powder and was not directed to heat treating the magnetic powder to eliminate or decrease the chemical segregation in each powder particle making up the magnetic powder

Claim Interpretation

4. Claims 1 and 2 each recite, “a starting material based on an SE-TM-B alloy” (claims 1 and 2, line 3, emphasis added by the Examiner). In view of the use of the term “based on”, the phrase, “a starting material based on an SE-TM-B alloy” is not limited to an alloy consisting of rare earth-transition metal-boron but rather has been interpreted to mean any rare earth-transition metal-boron alloy containing any additional elements in any amount.

5. It is noted that the in describing the starting material (for example, claim 1, line 3), the claims do not recite the starting material as being magnetic scrap material. The only mention of scrap magnetic material is in the preamble of the claims (for example

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see claim 1, line 2) which merely recites the purpose of the claims process. However, a preamble is generally not accorded any patentable weight where, as in the instant case, it merely recites the purpose of a process and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In view of this, the instant claims are not directed to a method wherein the starting material of the method is magnetic scrap material.

6. Claim 1, line 6 recites “a hard magnetic content greater than 90% by volume and/or foreign phases smaller than 0.5 mm in size” (emphasis added by the Examiner). In view of the use of the term “and/or”, claim 1 does not require “a hard magnetic content greater than 90% by volume” and “foreign phases smaller than 0.5 mm in size” but rather one or the other of “a hard magnetic content greater than 90% by volume” or “foreign phases smaller than 0.5 mm in size”.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1 to 23 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The use of magnetic scrap material is disclosed as critical or essential to the practice of the invention, but not included in the claim(s) is not

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enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). As explained above under the heading "Claim Interpretation", the claims do not require the use of magnetic scrap as the starting material.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 to 5 and 7 to 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al. (Takeshita '374, US Patent No. 5,110,374, cited by the Examiner) in view of Yajima et al. (Yajima '208, US Patent No. 5,049,208, cited by the Examiner).

Takeshita '374 teaches an HDDR process that is encompassed by the HDDR process recited in the instant claims (page 10, lines 24 to 43). Takeshita teaches that the HDDR process produces an anisotropic rare earth-transition metal-boron alloy powder having a recrystallized grain structure containing the $R_2Fe_{14}B$ phase (column 3, lines 55 to 60) and that this rare earth-transition metal-boron alloy powder is used to make bonded magnets (column 3, lines 48 to 51). Takeshita '374 teaches that the $R_2Fe_{14}B$ phase occupies no less than 50 volume % of the rare earth-transition metal-boron alloy (column 6, lines 3 to 10). Takeshita '374 teaches at least one specific example of the HDDR process having process steps that are encompassed by the

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claims (column 14, Example 1). Takeshita '374 teaches that the disclosed HDDR process is applicable to rare earth-transition metal-boron alloys containing Fe, Ni or Co as recited in claim 4 and C, O, N and S as recited in claims 5 (column 9, lines 14 to 36). Takeshita '374 teaches that the starting material for the HDDR process is a rare earth-transition metal-boron alloy containing the $R_2Fe_{14}B$ structure (column 6, lines 19 to 36). Thus, the process steps recited in applicants' claims are known.

Yajima '208 teaches a R-TM-B permanent magnet having a tetragonal phase (hard magnetic phase) (Abstract) having a crystal grain size of 0.01 to 3 microns (column 7, lines 41 to 53). Yajima '208 also teaches that the typical R-TM-B permanent magnet has a crystal grain size of 0.01 to 1 micron and about 10 microns (column 2, lines 36 to 61) depending on the method of manufacture. Thus, Yajima '208 teaches that R-TM-B permanent magnets typically have a crystal grain size of less than 10 microns which is encompassed by the grain size of less than 1 mm recited in the instant claims. Yajima '208 also teaches that the product of Yajima '208's process is an anisotropic magnet (column 5, lines 53 to 59). Yajima '208 teaches specific examples wherein the hard magnetic phase is greater than 90% by volume (see Table 1, Example 1 and Table 2 Examples 1 and 2).

The claims and Takeshita '374 differ in that Takeshita '374 is silent as to the crystal grain size of the R-TM-B alloy and the use of magnetic scrap.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because Yajima '208 teaches that the typical R-TM-B magnet has a crystal grain size of less than 10 micron. In view of

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this, it would be expected that the R-TM-B alloys taught by Takeshita '374 would have crystal grain sizes of 10 microns or less which is encompassed by the crystal grain size of less 1 mm recited in claim 1. Regarding the use of scrap magnetic material it is the Examiner's position that as set forth above under the heading, "Claim Interpretation" the instant claims are not directed to a method wherein the starting material of the method is magnetic scrap material.

11. Claims 1 to 5 and 7 to 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al. (Takeshita '374, US Patent No. 5,110,374, cited by the Examiner) in view of either Kim (Kim '020, US Patent No. 5,091,020, cited in the IDS submitted May 18, 2005) or Kaneko et al. (Kaneko '861, US Patent No. 6,149,861, cited by the Examiner) further in view of Yajima et al. (Yajima '208, US Patent No. 5,049,208, cited by the Examiner).

Takeshita '374 teaches an HDDR process that is encompassed by the HDDR process recited in the instant claims (page 10, lines 24 to 43). Takeshita teaches that the HDDR process produces an anisotropic rare earth-transition metal-boron alloy powder having a recrystallized grain structure containing the $R_2Fe_{14}B$ phase (column 3, lines 55 to 60) and that this rare earth-transition metal-boron alloy powder is used to make bonded magnets (column 3, lines 48 to 51). Takeshita '374 teaches that the $R_2Fe_{14}B$ phase occupies no less than 50 volume % of the rare earth-transition metal-boron alloy (column 6, lines 3 to 10). Takeshita '374 teaches at least one specific example of the HDDR process having process steps that are encompassed by the

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claims (column 14, Example 1). Takeshita '374 teaches that the disclosed HDDR process is applicable to rare earth-transition metal-boron alloys containing Fe, Ni or Co as recited in claim 4 and C, O, N and S as recited in claims 5 (column 9, lines 14 to 36). Takeshita '374 teaches that the starting material for the HDDR process is a rare earth-transition metal-boron alloy containing the $R_2Fe_{14}B$ structure (column 6, lines 19 to 36). Thus, the process steps recited in applicants' claims are known.

Kim '020 and Kaneko '861 each teach the concept of recycling scrap and or scrap sintered $R_2Fe_{14}B$ rare earth-transition metal-boron alloy (Abstract of each) and that the recycled rare earth-transition metal-boron alloy is used in place of new rare earth-transition metal-boron alloy powder (Kim '020, column 1, lines 60 to 64 and Kaneko '861, column 2, lines 14 to 28) as recited in claims 1 and 2. Kaneko '861 also teaches that the concept of recycling rare earth-transition metal-boron alloy is motivated by economics and environmental concerns (column 2, lines 14 to 28). Thus, the concept of recycling rare earth-transition metal-boron alloy is well known.

Yajima '208 teaches a R-TM-B permanent magnet having a tetragonal phase (hard magnetic phase) (Abstract) having a crystal grain size of 0.01 to 3 microns (column 7, lines 41 to 53). Yajima '208 also teaches that the typical R-TM-B permanent magnet has a crystal grain size of 0.01 to 1 micron and about 10 microns (column 2, lines 36 to 61) depending on the method of manufacture. Thus, Yajima '208 teaches that R-TM-B permanent magnets typically have a crystal grain size of less than 10 microns which is encompassed by the grain size of less than 1 mm recited in the instant claims. Yajima '208 also teaches that the product of Yajima '208's process is an

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anisotropic magnet (column 5, lines 53 to 59). Yajima '208 teaches specific examples wherein the hard magnetic phase is greater than 90% by volume (see Table 1, Example 1 and Table 2 Examples 1 and 2).

The claims and Takeshita '374 differ in that Takeshita '374 teaches the use of new rare earth-transition metal-boron alloy in the disclosed HDDR process and not scrap rare earth-transition metal-boron alloy as recited in the claims. Further, Takeshita '374, Kim '020 and Kaneko '861 are each silent as to the crystal grain size of the R-TM-B alloy.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because such a person would have been motivated to substitute scrap rare earth-transition metal-boron alloy for the new rare earth-transition metal-boron alloy as the starting material in Takeshita '374's process for economic and environmental reasons as taught by each of Kim '020 and Kaneko '861. The results of such a substitution are reasonably predictable.

Regarding the grain size, Yajima '208 teaches that the typical R-TM-B magnet has a crystal grain size of less than 10 micron. In view of this it would be expected that the R-TM-B alloys taught by each of Takeshita '374, Kim 020 and Kaneko '861 would have crystal grain sizes of 10 microns or less which is encompassed by the crystal grain size of less 1 mm recited in claim 1.

Response to Arguments

12. Applicant's arguments filed June 3, 2009 have been fully considered but they are not persuasive.

13. Applicants' arguments regarding the rejection of claim 13 under 35 USC 112, first paragraph, as drawn to new matter are not persuasive. Applicants have cited original claim 13 as filed, page 6, the first and third paragraph and page 11, the fifth full paragraph as support for amended claim 13. The Examiner is not persuaded. As presently drafted claim 13 encompasses homogenizing the magnetic powder, that is, heat treating the magnetic powder to eliminate or decrease the chemical segregation in each powder particle making up the magnetic powder. Original claim 13, as filed, the first paragraph on page 6 of the specification and the fifth full paragraph on page 11 of the specification are all directed to homogenizing by blending the magnetic powder and are not directed to heat treating the magnetic powder to eliminate or decrease the chemical segregation in each powder particle making up the magnetic powder. The third paragraph on page 6 of the specification is directed to a heat treatment type of homogenization, but in the context of the prior art not in the context of the instant invention.

14. Applicants' argument regarding "an average grain size of less than 1 mm, a hard magnetic content greater than 90% by volume, and/or foreign phases smaller than 0.5 mm in size" are not persuasive in the new statement of the rejection set forth above.

15. Applicant's arguments that it cannot be assumed that Takeshita '374's process which is disclosed as directed to new R-TM-B material can be used with scrap material

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are not persuasive. Applicants have not supported their position with any reasoning or evidence. Further, in view of the fact that R-TM-B magnetic material, whether new or recycled, are composed of the same elements in the same crystal structure, it is considered reasonable to expect the new and recycled R-TM-B materials to behave similarly in Takeshita '374's process and that there is a reasonable expectation of success of substituting recycled R-TM-B in Takeshita '374's process for economic and environmental reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (571) 272-1249. The examiner can normally be reached on T-F (7:30-5:00) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John P. Sheehan/

Primary Examiner, Art Unit 1793